



OWNER'S GUIDE



Model 149D Shown

18" AND 20" MULCHING
PUSH MOWERS

MODEL NO:
11A-702A190
11A-702E190
11A-106F190

21" MULCHING SELF
PROPELLED MOWER

MODEL NO:
12A-149D190



IMPORTANT: READ SAFETY RULES AND INSTRUCTIONS CAREFULLY

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022 Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC. P.O. BOX 368022 CLEVELAND, OHIO 44136-9722

USE THIS PAGE AS A GUIDE TO DETERMINE SLOPES WHERE YOU MAY NOT OPERATE SAFELY.

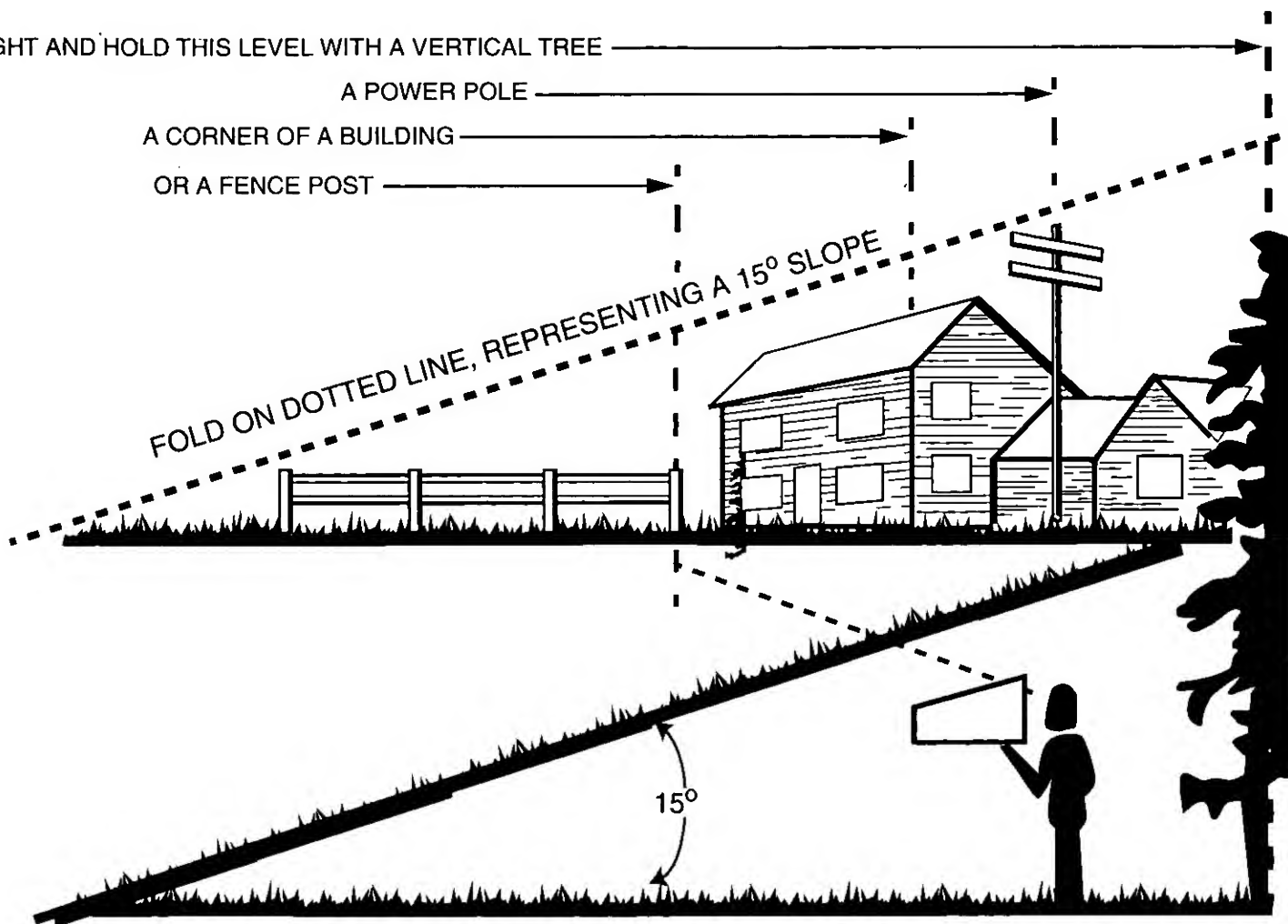
SIGHT AND HOLD THIS LEVEL WITH A VERTICAL TREE

A POWER POLE

A CORNER OF A BUILDING

OR A FENCE POST

FOLD ON DOTTED LINE, REPRESENTING A 15° SLOPE



WARNING



Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.

Operate RIDING mowers up and down slopes, never across the face of slopes.

Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

SECTION 2: IMPORTANT SAFE OPERATION PRACTICES



WARNING: THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR LAWN MOWER. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY. WHEN YOU SEE THIS SYMBOL, HEED ITS WARNING.



DANGER: Your lawn mower was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This lawn mower is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

1. GENERAL OPERATION

- Read this owner's guide carefully in its entirety before attempting to assemble this machine. Read, understand, and follow all instructions on the machine and in the manual(s) before operation. Be completely familiar with the controls and the proper use of this machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
- Your rotary mower is a precision piece of power equipment, not a plaything. Therefore, exercise extreme caution at all times. Your unit has been designed to perform one job: to mow grass. Do not use it for any other purpose.
- Never allow children under 14 years old to operate a power mower. Children 14 years old and over should only operate mower under close parental supervision. Only responsible individuals who are familiar with these rules of safe operation should be allowed to use your mower.
- Keep the area of operation clear of all persons, particularly small children and pets. Stop engine when they are in the vicinity of your mower to help prevent blade contact or thrown object injury. Although the area of operation should be completely cleared of foreign objects, an object may have been overlooked and could be accidentally thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area.
- Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones, toys and other foreign objects which could be picked up and thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area. Plan your mowing pattern to avoid discharge of material toward roads, sidewalks, bystanders and the like. To help avoid a thrown objects injury, keep children, bystanders and helpers at least 75 feet from the mower while it is in operation.
- Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes from foreign objects that may be thrown from the machine in any direction.
- Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Shirts and pants that cover the arms and legs and steel-toed shoes are recommended. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals, or sneakers.
- Do not put hands or feet near or under rotating parts. Keep clear of discharge opening at all times as the rotating blade can cause injury.
- Many injuries occur as a result of the mower being pulled over the foot during a fall. Do not hang on to the mower if you are falling; release the handle immediately.
- Never pull the mower toward you while you are walking. If you must back the mower away from a wall or obstruction first look down and behind, and then follow these steps:
 - Step back from the mower to fully extend your arms.
 - Be sure you are well balanced with sure footing.
 - Pull the mower back slowly, no more than half way toward you.
 - Repeat these steps as needed.
- Do not operate the mower while under the influence of alcohol or drugs.
- Disengage the self-propelled mechanism or drive clutch on units so equipped before starting the engine.
- The blade control handle is a safety device. Never attempt to bypass its operation. Doing so makes the safety device inoperative and may result in personal injury through contact with the rotating blade. The blade control handle must operate easily in both directions and automatically return to the disengaged position when released.
- Never operate the mower in wet grass. Always be sure of your footing. A slip and fall can cause serious personal injury. Keep a firm hold on the handle and walk, never run. Mow only in daylight or in good artificial light.
- Stop the blade when crossing gravel drives, walks or roads.
- If the equipment should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
- Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher or unclogging the chute. The cutting blade continues to rotate for a few seconds after the engine is shut off. Never place any part of the body in the blade area until you are sure the blade has stopped rotating.
- Never operate mower without proper guards, grass catcher, plates or other safety protective devices in place.
- Muffler and engine become hot and can cause a burn. Do not touch.
- Only use accessories approved for this machine by the manufacturer. Read, understand, and follow all instructions provided with the approved accessory.
- If situations occur which are not covered in this manual, use care and good judgment. Contact your dealer for assistance.

2. SLOPE OPERATION

For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15 degrees as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

DO:

- Mow across the face of slopes; never up and down. Exercise extreme caution when changing direction on slopes.
- Watch for holes, ruts, hidden objects, or bumps. Tall grass can hide obstacles.
- Always be sure of your footing. A slip and fall can cause serious personal injury.

DO NOT:

- Do not mow near drop-offs, ditches or embankments. The operator could lose footing or balance.
- Do not mow slopes greater than 15 degrees as shown on the slope gauge.
- Do not mow on wet grass. Reduced footing could cause slipping.

3. CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the mower and the mowing activity. Never assume that children will remain where you last saw them.

- Keep children out of the mowing area and under the watchful care of a responsible adult other than the operator.
- Be alert and turn mower off if a child enters the area.
- Before and while moving backwards, look behind and down for small children.
- Never allow children under age 14 to operate the mower.
- Use extreme care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision of a child or hazard.

4. SERVICE

- Use extreme care in handling gasoline and other fuels. They are extremely flammable and the vapors are explosive.
- Use only an approved gasoline container.
- Never remove gas cap or add fuel while the engine is running. Allow engine to cool at least two minutes before refueling.
- Replace gasoline cap securely and wipe off any spilled gasoline before starting the engine as it may cause a fire or explosion.
- Extinguish all cigarettes, cigars, pipes and other sources of ignition.
- Never refuel machine indoors because flammable vapors will accumulate in the area.
- Never store the machine or fuel container inside where there is an open flame or spark such as a gas water heater, space heater, or furnace.
- Never run an engine inside a closed area.
- To reduce fire hazard, keep mower free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. Allow mower to cool at least 5 minutes before storing.
- Before cleaning, repairing, or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the spark plug to prevent accidental starting.
- Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also, visually inspect blade for damage (e.g., bent, cracked). Replace with blade which meets original equipment specifications.
- Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
- Never tamper with safety devices. Check their proper operation regularly.

- After striking a foreign object, stop the engine, remove the wire from the spark plug, and thoroughly inspect the mower for any damage. Repair the damage before starting and operating the mower.
- Never attempt to make a wheel or cutting height adjustment while the engine is running.
- Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. For safety protection, frequently check components and replace with manufacturer's recommended parts, when necessary.
- Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves, and use extra caution when servicing them.
- Do not change the engine governor setting or overspeed the engine. Excessive engine speeds are dangerous.



WARNING - YOUR RESPONSIBILITY:

Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.



Figure 1



WARNING: To reduce the risk of injury, do not operate mower unless rear trailing shield is in its proper place.

The use of any accessory on this walk-behind mower other than those manufactured by the mower manufacturer is not recommended. Grass catcher model number 190-110 is available as optional equipment.

MODEL PLATE

- Disconnect spark plug wire from the spark plug and ground it against the engine. On engines with a rubber boot, attach rubber boot to a bolt on the engine to ground. See figure 2.
- Pull up and back on the upper handle to raise the handle into the operating position. Make certain the lower handle is seated securely into the handle mounting brackets. Tighten the hand knobs on each side of the handle (carriage bolts must be seated properly into the handle). See Figure 3.

NOTE: Your mower is shipped with the handle in the higher height position. If you wish to lower the height of the handle, refer to the, Handle Height Adjustment Section in Section 7.

- Remove the hairpin clips from the outer holes in the weld pins on the handle mounting brackets. Using a pair of pliers, squeeze one leg of the lower handle against the handle mounting bracket. Insert the hairpin clip into the inner hole on the weld pin.
- Repeat on other side. See figure 4.

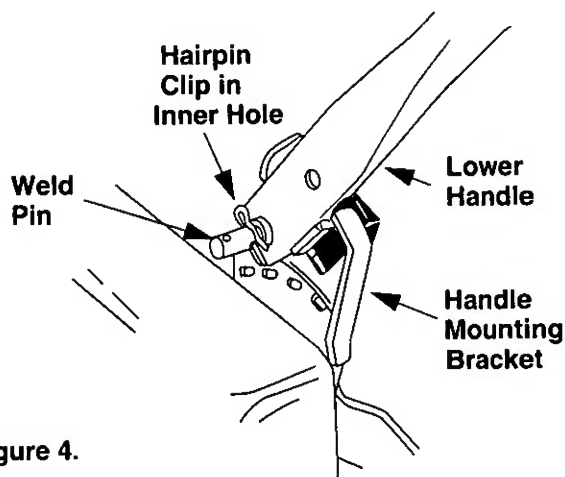


Figure 4.

- The rope guide is attached to the right side of upper handle. Loosen the wing nut which secures the rope guide. See figure 5.

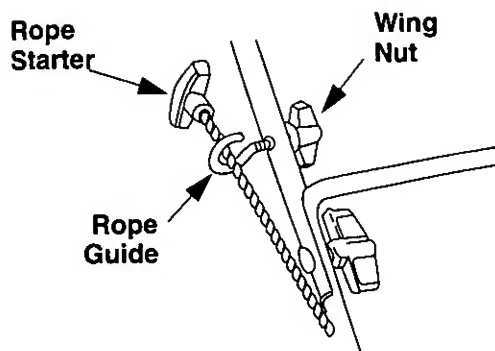


Figure 5.

- With the spark plug wire disconnected and grounded, hold the blade control handle against the upper handle, and pull the starter rope out of the engine. Release the blade control handle. Slip the starter rope into the rope guide. Tighten the wing nut. See figure 5.
- Make certain all nuts and bolts are tightened securely.

NOTE: Your mower has been shipped as a mulcher. To discharge grass to the side, proceed to the following step.

- To convert your mower from a mulcher to a side discharge mower, lift the mulching plug. Slide the two hooks on the side discharge deflector under the hinge pin on the mulching plug assembly. Lower the mulching plug. See figure 6.

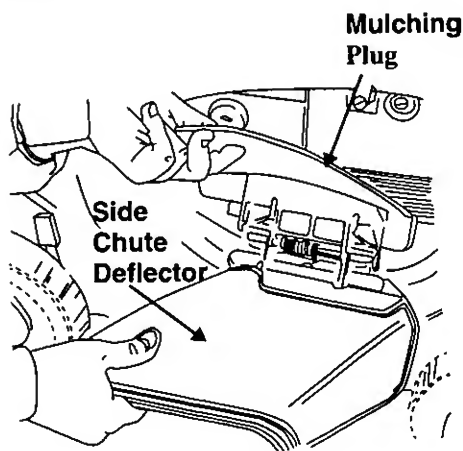


Figure 6.

SECTION 5: CONTROLS

BLADE CONTROL HANDLE



WARNING: This control mechanism is a safety device. Never attempt to bypass its operations

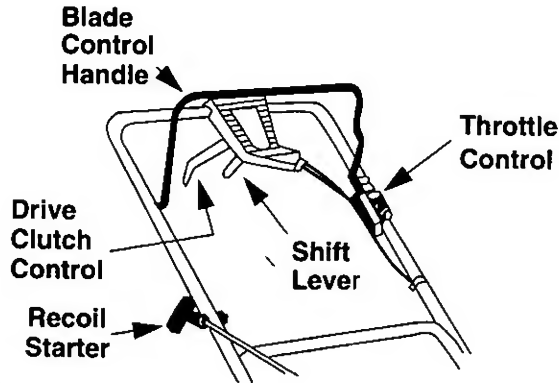


Figure 7.

The blade control handle is located on the upper handle of the mower. See figure 7. The blade control handle must be depressed in order to operate the unit. Release the blade control handle to stop the engine and blade.



WARNING: The blade will be rotating whenever the engine is running.

THROTTLE CONTROL

The throttle control is located on the left side of the upper handle. It is used to regulate the engine speed.



WARNING: The throttle control cannot be used to stop the engine.

RECOIL STARTER

The recoil starter handle is attached to the handle. See figure 7. Stand behind the unit in the operating position to start the unit.

DRIVE CLUTCH CONTROL

(Self-Propelled Models Only)

Squeezing the drive clutch control engages the drive mechanism to the rear wheels. Releasing the clutch control stops the rear wheels from driving. Release the drive clutch control to slow down when negotiating an obstacle, making a turn or stopping. See figure 7.

SHIFT LEVER (Self-Propelled Models Only)

The six speed shift lever is located on the drive clutch control housing on the upper handle. See figure 7. This lever is used to select the operating speed of the mower. Release the drive clutch control when changing speeds.

IMPORTANT: Move the shift lever ONLY when the engine is RUNNING. Shifting the speeds with the engine off can cause damage to the unit.

SECTION 6: OPERATION

Keep hands and feet away from the chute area on cutting deck. See figure 1 on page 4.

The operation of any lawn mower can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields. We recommend wide vision safety mask for over spectacles or standard safety glasses.

NOTE: For best results raise the cutting position until it is determined which height is best for your lawn. See Cutting Height Adjustment section.

GAS AND OIL FILL-UP

Service the engine with gasoline and oil as instructed in the separate engine manual. Read instructions carefully.



WARNING: Never fill fuel tank indoors, with engine running or until the engine has been allowed to cool for at least two minutes after running.

BEFORE STARTING

Self-Propelled Models Only:

- Before each use, check for proper drive clutch operation by performing the following before starting the engine:
- With the drive clutch control released, push mower forward. It should move freely. Pull mower backward. It should move with only a small amount of resistance.
- If it does not and the rear wheels tend to lock up, the clutch may not be releasing completely. Do not start the engine until corrections have been made. Check the control cable for severe bend kinks and binding, or grass build-up around the belt. Correct and adjust as required. Refer to instructions under Drive Clutch Control Adjustment in Adjustment Section for loosening the drive belt.

- Attach spark plug wire to spark plug. If equipped with a rubber boot, make certain the metal loop on the end of the spark plug wire (inside the rubber boot) is fastened securely over the metal tip on the spark plug.

TO START ENGINE AND ENGAGE BLADE

Self-Propelled Models Only:

IMPORTANT: Move the shift lever only when the engine is running. Shifting the speeds with the engine off can cause damage to the unit. Disengage the drive clutch control when shifting speeds.



WARNING: When starting the unit for the first time, place mower in first speed (slow) position. Face the mower against a solid object such as a wall, fence, etc. Start the unit, and if it shows any signs of motion with the drive clutch control disengaged, shut the engine off immediately. Make certain the drive clutch control is adjusted so the drive belt is as loose as possible. Refer to the Adjustment Section.

All Units:

- Move the throttle control lever to all the way forward.
- Prime engine as instructed in the engine manual.
- Standing behind the unit, depress the blade control handle and hold it against the upper handle. Make certain drive clutch control handle (self-propelled models only) is released.
- Grasp starter handle and pull rope out slowly until engine reaches start of compression cycle (rope will pull slightly harder at this point). Let the rope rewind slowly.
- Pull rope with a rapid, continuous, full arm stroke. Keep a firm grip on starter handle. Return it slowly to the rope guide.
- After engine starts, move throttle control to FAST or desired engine speed. (Mower is designed to be operated at full throttle.)

NOTE: If any problems are encountered, refer to the Trouble Shooting Guide for helpful information.

TO STOP ENGINE AND BLADE

- Release the blade control handle to stop the engine and blade.



WARNING: The blade continues to rotate for a few seconds after the engine is shut off.

- Disconnect the spark plug wire and ground it against the engine to prevent accidental starting while equipment is unattended.

USING YOUR ROTARY MOWER

Be sure that lawn is clear of stones, sticks, wire, or other objects which could damage lawn mower or engine. Such objects could be accidentally thrown by the mower in any direction and cause serious personal injury to the operator and others.

For the best results, do not cut wet grass because it tends to stick to the underside of the mower, preventing proper discharge of grass clippings, and could cause you to slip and fall. New grass, thick grass or wet grass may require a narrower cut. Speed of the mower should be adjusted to the condition of the lawn.

When using the side discharge mower, the best mowing pattern is one that allows the clippings to discharge towards the uncut part of the lawn. This permits recutting of the clippings to further pulverize them. When cutting high weeds, discharge towards cut portion, then recut at right angles to first direction.

For a healthier lawn, always cut off one-third or less of the total length of the grass. Lawn should be cut in the fall as long as there is growth.

This mower is designed to be operated at full throttle to give you the best cut and do the most effective job of mowing.



WARNING: If you strike a foreign object, stop the engine. Remove wire from spark plug, thoroughly inspect the mower for any damage, and repair the damage before restarting and operating the mower. Extensive vibration of the mower during operation is an indication of damage. The unit should be promptly inspected and repaired.

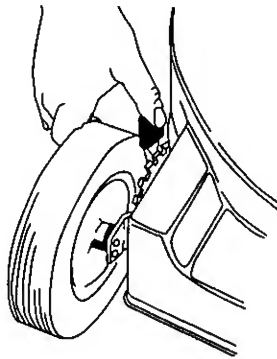
SECTION 7: ADJUSTMENTS



WARNING: Do not at any time make any adjustment to lawn mower without first stopping engine and disconnecting spark plug wire.

CUTTING HEIGHT ADJUSTMENT

Push Models



**Figure 8 -
Push Model**

An adjusting plate and thumb lever at each wheel position provides cutting height adjustment. Each adjusting plate has nine height positions. Height of cut will be changed when the thumb lever is moved from one hole to another. Simply depress the lever towards wheel and move wheel and lever assembly to desired position. All wheels must be placed in the same relative position. See figure 8

Self Propelled Models.

The height adjustment handles for the wheels are located on the left side of the deck. The handles may be placed in one of nine cutting height positions. See figure 9.

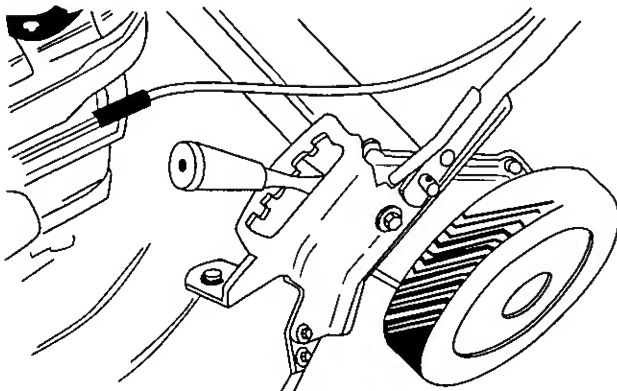


Figure 9 - Self-Propelled Model

For rough or uneven lawns, move the height adjustment handles to positions which will give a higher cutting height. Both front and rear handles must be placed in the same relative position.

HANDLE HEIGHT ADJUSTMENT

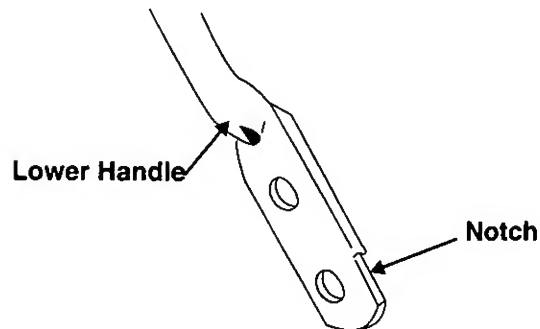
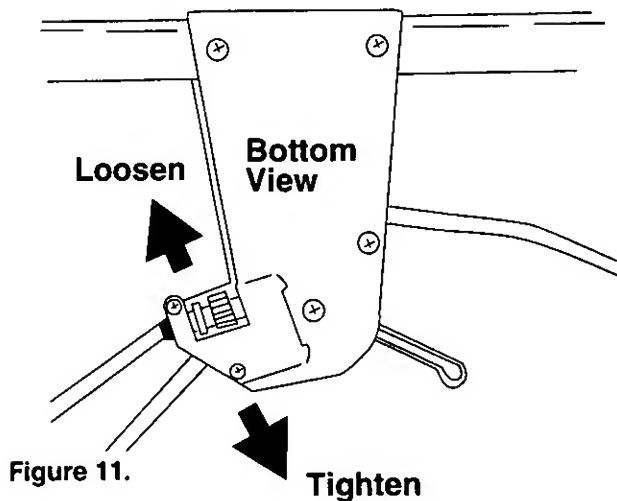


Figure 10.

Your mower is shipped with the handle in the higher height position. To lower the handle height, proceed as follows.

- Remove the starter rope from the rope guide.
- Remove the upper handle by removing the hand knobs and carriage bolts. Lay the upper handle out of the way, being careful not to bend or kink the cables.
- Remove the hairpin clips from the weld pins on the handle brackets. Press outward on the legs of the lower handle for self-propelled models. For push models, press inward on the legs of the lower handle. Remove lower handle from the mower.
- Turn the lower handle around so the notch on the bottom of the lower handle is facing forward as shown in figure 10. Reassemble, placing the bottom holes in the handle over the weld pins in the handle mounting bracket.
- Reassemble the upper handle.
- Place the hairpin clips in the inner holes in the weld pins and attach the starter rope as instructed in the Set-Up Instructions.

DRIVE CLUTCH CONTROL ADJUSTMENT



(Self-Propelled Models Only)

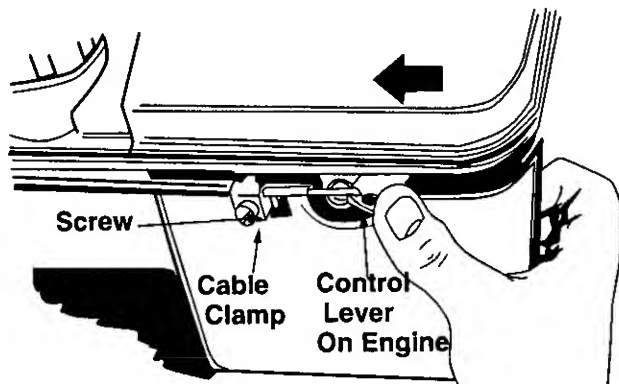
Use the adjustment wheel located in the clutch control housing to tighten the drive belt if mower does not self-propel with the drive clutch control engaged, or if drive belt is slipping (unit hesitates while engine maintains the same speed). See figure 11.

In addition, the adjustment wheel may also be used to determine the position in which the drive clutch control is engaged. If it is more comfortable to have the drive engaged with the lever further away from the handle, tighten the drive belt.

Make certain to retest the unit for neutral as instructed in the Operation Section. Move the adjustment wheel in the opposite direction to loosen the drive belt if necessary.

THROTTLE CONTROL ADJUSTMENT

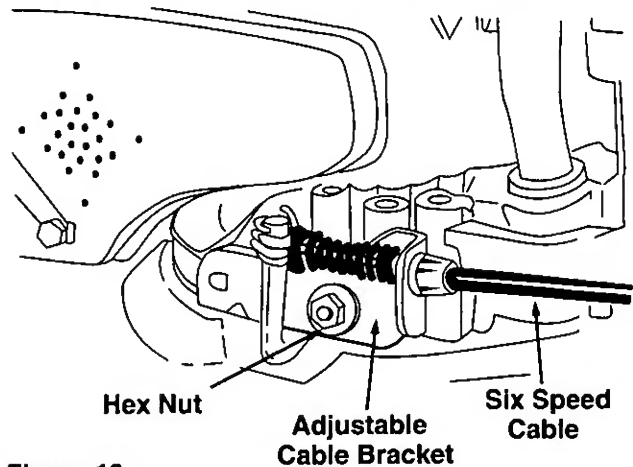
If the throttle control requires adjustment or if it has been replaced, adjust the throttle control as follows.



- Remove the screw shown in figure 12. Remove the cable clamp from the cable.

- Push the throttle control lever on the handle all the way forward as far as it will go, then back it off **one "click"**. Make certain the throttle control lever remains in this position.
- Push the control lever on the engine as far **toward the rear** of the engine as it will go. Secure the cable in this position with the cable clamp and screw.

SIX SPEED SHIFT CABLE ADJUSTMENT



(Self-Propelled Models Only)

Periodic adjustment of the six speed shift cable may be required due to normal stretch and wear on the cable. Adjustment is needed if all six speeds cannot be obtained.

The adjustable cable bracket is located on the left side of the mower, beside the engine. To adjust, loosen the hex nut which secures the adjustable cable bracket. See figure 13. Place the shift lever in the sixth speed position. Make certain the belt is not pinched between the pulley halves. Pull backward on the adjustable cable bracket (toward the rear of the mower). Retighten the hex nut. Test the speeds on the mower (engine must be running).

SECTION 8: LUBRICATION



WARNING: Always stop engine and disconnect spark plug wire before cleaning, lubricating or doing any kind of work on lawn mower.

Blade Control: Lubricate the pivot points on the blade control handle and the brake cable at least once a season with light oil. See figure 14. The blade control must operate freely in both directions.

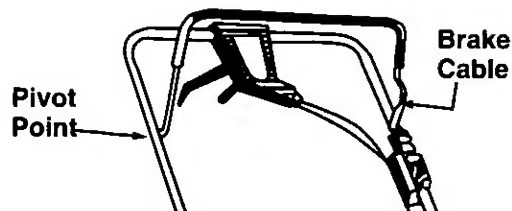


Figure 14.

Wheels: Lubricate the wheel bearings (if so equipped) at least once a season with light oil (or engine oil). Also, if the wheels are removed for any reason, lubricate the surface of the axle bolt and the inner surface of the wheel with light oil.

Engine: Follow engine manual for lubrication instructions.

Transmission: (Self-Propelled Models Only) The transmission is pre-lubricated and sealed at the factory. It does not require checking. If disassembled for any reason, fill with 2 ounces of Benalene grease, part number 737-0300.

SECTION 9: MAINTENANCE



WARNING: Be sure to disconnect and ground the spark plug wire before performing any repairs or maintenance.

NOTE: When tipping the unit, empty the fuel tank and keep engine spark plug side up.

TROUBLE SHOOTING

Refer to TROUBLE SHOOTING SECTION of this manual for helpful information.

CUTTING BLADE

When removing the cutting blade for sharpening or replacement, protect hands by using heavy gloves or a rag to grasp the cutting blade.

Blade Type A

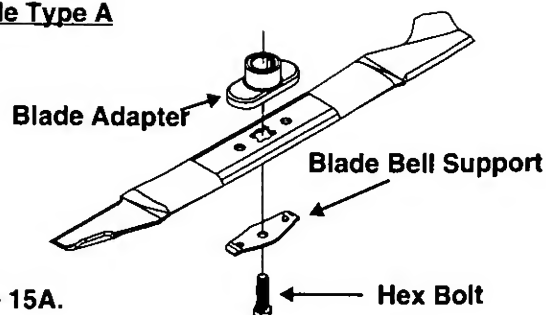


Figure 15A.

Blade Type B

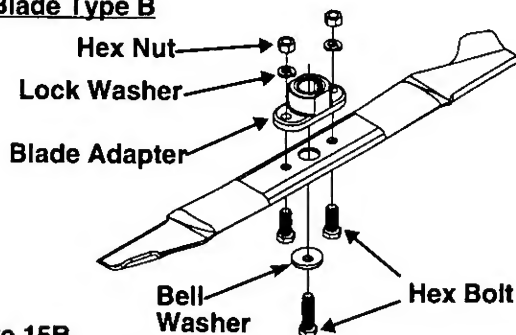


Figure 15B.

There are two blade adapter systems used on rotary mowers. Please identify which one is on your lawn mower. The easiest way to do this is to match the exploded view in Figure 15 with your blade.

- Blade type A will have one bolt holding it in place.
- Blade type B will have three bolts holding it in place.
- When removing the cutting blade for sharpening or replacement, protect hands by using heavy gloves or a rag before grabbing the blade.

To remove blade type A:

- Remove the bolt and blade bell support which hold the blade and adapter to the engine crankshaft. Remove the blade and adapter from the crankshaft.

To remove blade type B:

- Remove the center hex bolt and bell washer. Slide blade from crank shaft.
- Remove left and right hex bolts to take off adapter.



WARNING: Periodically inspect the blade adapter for cracks, especially if you strike a foreign object. Replace when necessary.

When sharpening the blade, follow the original angle of grind as a guide. It is extremely important that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds, may cause damage to the mower and could break, causing personal injury.

The blade can be tested by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly. It is recommended that the blade always be removed from the adapter for the best test of balance.

Before reinstalling the blade and the blade adapter to the unit, lubricate the engine crankshaft and the inner surface of the blade adapter with light oil (or engine oil). Lubricating the bolt holes, bolts and inner surface of the nuts is also recommended.

When reinstalling blade type A:

- Be sure to install the blade with the side of the blade marked "Bottom" (or with part number) facing the ground when the mower is in the operating position.
- Be certain the blade is aligned with and seated onto the blade adapter flanges.
- Place blade bell support on blade. Make sure the notches on the blade bell support are aligned with the small hole in the blade.
- Replace hex bolt.
- Tighten to torque: 450 in. lbs. min., 600 in. lbs. max.

When reinstalling blade type B:

- Assemble the blade adapter to the blade. See Figure 15B for proper order of hardware.
- Be sure the side of the blade marked "Bottom" (or with part number) is facing down.
- Tighten blade adapter bolts: Blade adapter bolt torque: 200 in. lbs. min., 350 in. lbs. max.
- Slide Blade and adapter assembly onto engine shaft.
- Replace bell washer and center bolt, with the cup side of the bell washer against the blade.
- Tighten to torque: 450 in. lbs. min., 600 in. lbs. max.

To ensure safe operation of your unit, all nuts and bolts must be checked periodically for correct torque.

NOTE: On self-propelled models, a wave washer and a spacer may come off the crankshaft when the blade is removed. When reassembling, place the spacer on the crankshaft first, then the wave washer. See Figure 16.

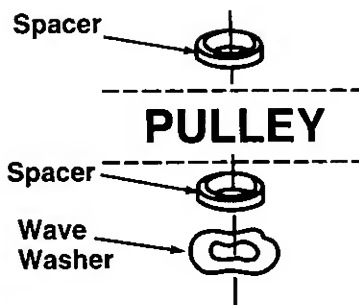


Figure 16.



WARNING: Periodically inspect the blade adapter for cracks, especially if you strike a foreign object. Replace when necessary.

DECK

- The underside of the mower deck should be cleaned after each use to prevent a buildup of grass clippings, leaves, dirt or other matter. If this debris is allowed to accumulate, it will invite rust and corrosion, and may prevent proper mulching.
- The deck may be cleaned by tilting the mower and scraping clean with a suitable tool (make certain the spark plug wire is disconnected).

ENGINE

- Refer to the separate engine manual for all engine maintenance instructions.
- Maintain ENGINE OIL as instructed in the separate engine manual packed with your unit. Read and follow instructions carefully.
- Service AIR CLEANER every 25 hours under normal conditions. Clean every few hours under extremely dusty conditions. Poor engine performance and flooding usually indicates that the air cleaner should be serviced. To service the air cleaner, refer to the separate engine manual packed with your unit.
- The SPARK PLUG should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season; check engine manual for correct plug type and gap specifications.
- CLEAN THE ENGINE regularly with a cloth or brush. Keep the cooling system (blower housing area) cleaned to permit proper air circulation which is essential to engine performance and life. Be certain to remove all grass, dirt and combustible debris from muffler area.

BELT REMOVAL AND REPLACEMENT

(Self-Propelled Models Only)

- Place shift lever in third speed.
- Disconnect the spark plug wire and ground it against the engine.
- Drain the fuel tank or place a piece of plastic beneath the cap to prevent gasoline leakage.
- Remove the transmission belt cover by removing three bolts. See figure 17.
- Tip the mower on its side. Block securely.

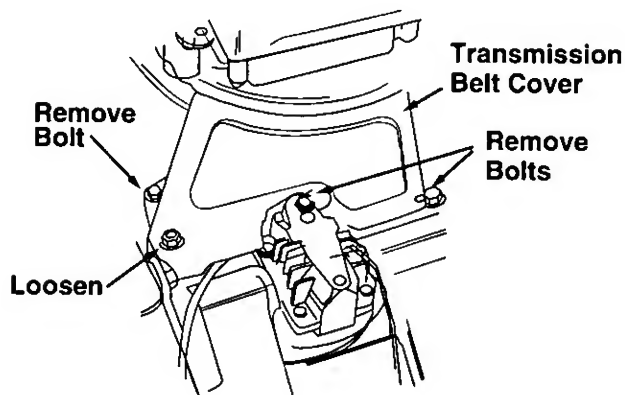


Figure 17.

- Remove the center bolt which secures the blade to the crankshaft. See figure 18. Remove the blade and blade adapter.
- Remove the two self-tapping screws which secure the lower pulley half. See figure 18.

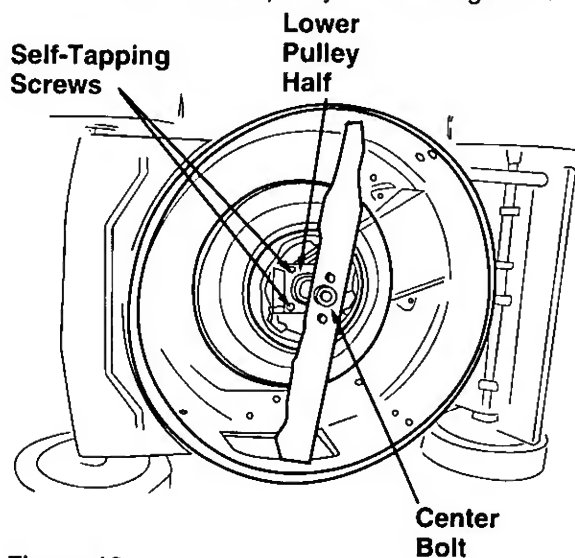


Figure 18.

- Rotate the lower pulley half 90° clockwise (see figure 19) and remove from mower. Remove the belt from around the crankshaft.

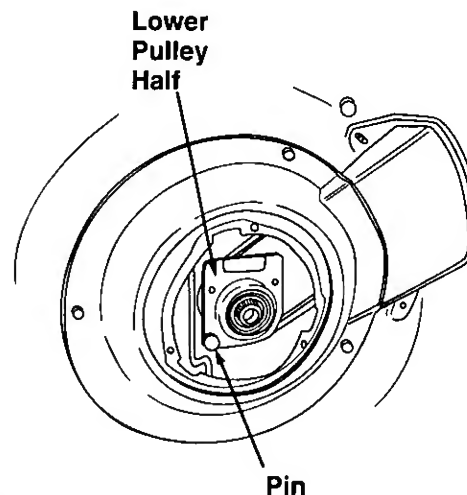


Figure 19.

- Remove the belt from between the idler pulley and the belt guard on the idler pulley bracket. See figure 20.

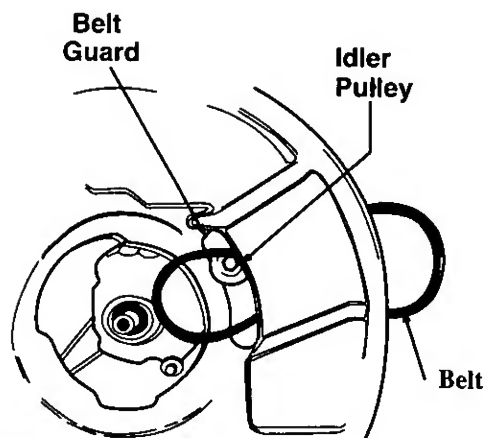


Figure 20.

- Remove the belt from the transmission pulley.

Install the new belt as follows.

- Push the idler pulley up out of the way as shown in figure 20.
- Slide the belt in from the rear of the deck, and place it around the transmission pulley. See figure 20.
- Release the idler pulley so it falls down into position. Slide the belt in between the idler pulley and belt guard on the idler pulley bracket.
- Grease the crankshaft.
- Reassemble, following Belt Removal steps as previously noted.



NOTE: When reassembling, make certain the pin on the lower pulley half is outside the belt. Also, be certain the belt guard on the transmission cover is approximately "1/8" away from the belt. Make certain to tighten all nuts and bolts securely. If plastic was placed under the gas cap, be certain to remove it.

SECTION 10: OFF-SEASON STORAGE

The following steps should be taken to prepare lawn mower for storage.

- Clean and lubricate mower thoroughly as described in the lubrication instructions.
- Refer to engine manual for correct engine storage instructions.
- Coat mower's cutting blade with chassis grease to prevent rusting.
- Store mower in a dry, clean area. Do not store next to corrosive materials, such as fertilizer.

NOTE: When storing any type of power equipment in an unventilated or metal storage shed, care should be taken to rust-proof the equipment. Using a light oil or silicone, coat the equipment, especially cables and all moving parts.

SECTION 11: TROUBLE SHOOTING GUIDE

Trouble	Possible Cause(s)	Corrective Action
Engine fails to start	<ol style="list-style-type: none"> 1. Blade control handle disengaged. 2. Spark plug wire disconnected. 3. Throttle control lever not in correct position. 4. Fuel tank empty, or stale fuel. 5. Blocked fuel line. 6. Faulty spark plug. 7. Engine flooded. 	<ol style="list-style-type: none"> 1. Engage blade control handle. 2. Connect wire to spark plug. 3. Move throttle lever to FAST or START position. 4. Fill tank with clean, fresh gasoline. 5. Clean fuel line. 6. Clean, adjust gap or replace. 7. Crank engine with throttle in FAST position.
Engine runs erratic	<ol style="list-style-type: none"> 1. Unit running in START position. 2. Spark plug wire loose. 3. Blocked fuel line or stale fuel. 4. Vent in gas cap plugged. 5. Water or dirt in fuel system. 6. Dirty air cleaner. 7. Carburetor out of adjustment. 	<ol style="list-style-type: none"> 1. Move throttle lever to FAST position. 2. Connect and tighten spark plug wire. 3. Clean fuel line; fill tank with clean, fresh gasoline. 4. Clear vent. 5. Drain fuel tank. Refill with fresh fuel. 6. Clean air cleaner. 7. Adjust carburetor.
Engine overheats	<ol style="list-style-type: none"> 1. Engine oil level low. 2. Air flow restricted. 3. Carburetor not adjusted properly. 	<ol style="list-style-type: none"> 1. Fill crankcase with proper oil. 2. Remove blower housing and clean. 3. Adjust carburetor.
Occasional skip (hesitates) at high speed	<ol style="list-style-type: none"> 1. Spark plug gap too close. 	<ol style="list-style-type: none"> 1. Adjust gap to .030".
Idles poorly	<ol style="list-style-type: none"> 1. Spark plug fouled, faulty or gap too wide. 2. Carburetor improperly adjusted. 3. Dirty air cleaner. 	<ol style="list-style-type: none"> 1. Reset gap to .030" or replace spark plug. 2. Adjust carburetor. 3. Clean air cleaner.
Excessive vibration	<ol style="list-style-type: none"> 1. Cutting blade loose or unbalanced. 2. Bent cutting blade. 	<ol style="list-style-type: none"> 1. Tighten blade and adapter. Balance blade. 2. Replace blade.
Mower will not mulch grass	<ol style="list-style-type: none"> 1. Engine speed too low. 2. Wet grass. 3. Excessively high grass. 4. Dull blade. 	<ol style="list-style-type: none"> 1. Set throttle between 3/4 and full throttle. 2. Do not mow when grass is wet; wait until later to cut. 3. Mow once at a high cutting height, then mow again at desired height or make a narrower cutting swath (1/2 width). 4. Sharpen or replace blade.
Uneven cut	<ol style="list-style-type: none"> 1. Wheels not positioned correctly. 2. Dull blade. 	<ol style="list-style-type: none"> 1. Place all four wheels in same height position. 2. Sharpen or replace blade.

Refer to separate engine manual packed with your mower.

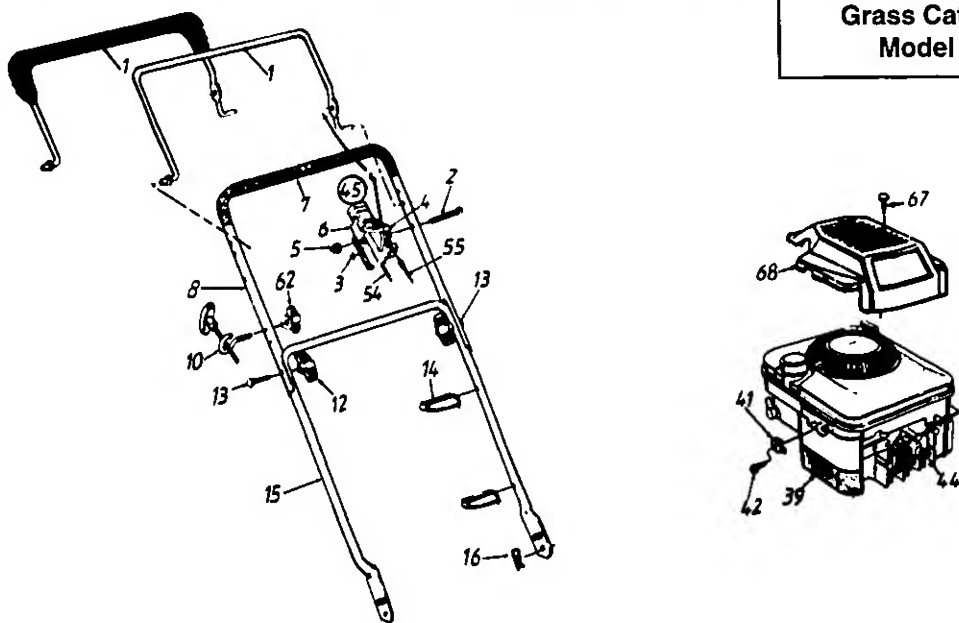
Note: For repairs beyond the minor adjustments listed above, contact your authorized service dealer.

NOTES

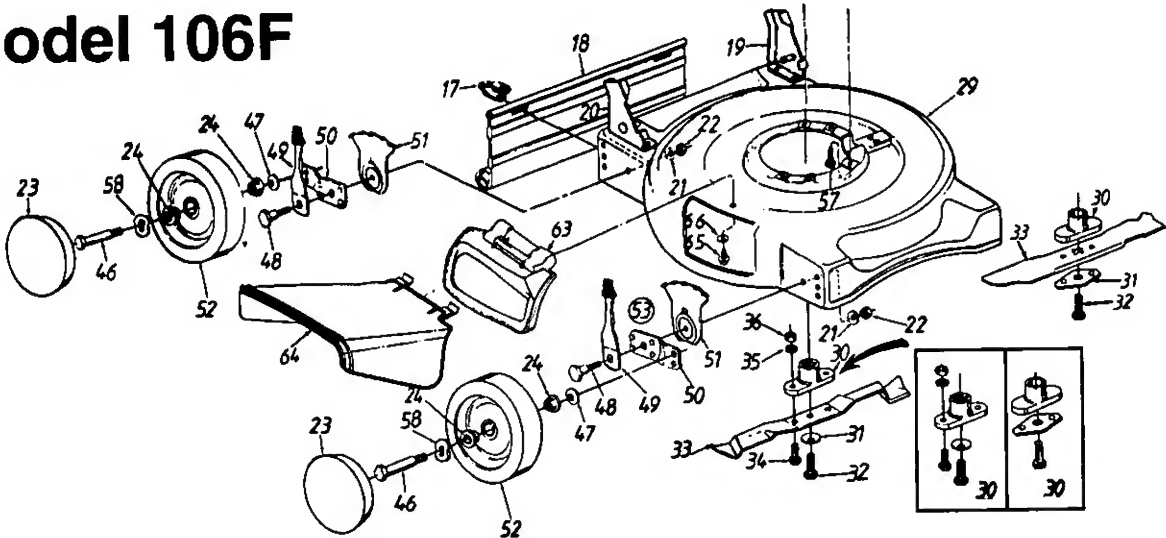


Models 106F, 702A and 702E

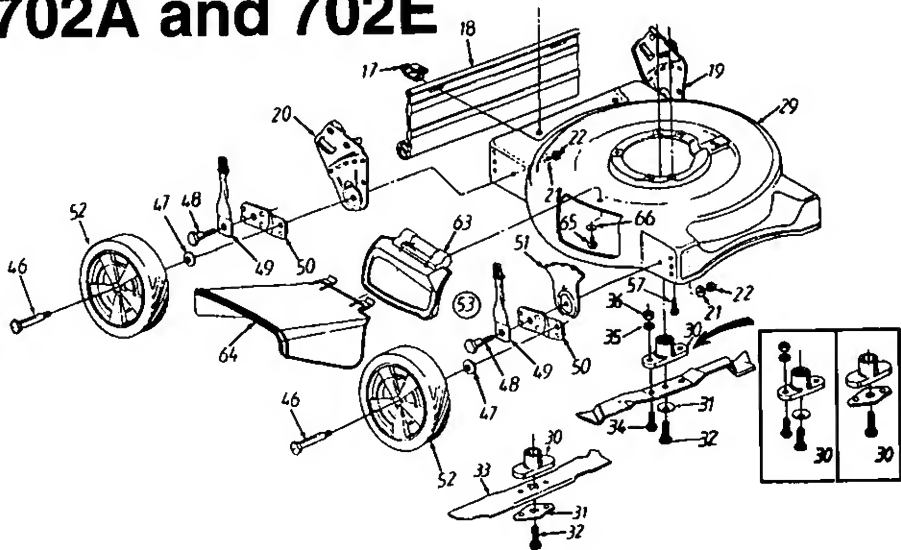
Grass Catcher Complete
Model 190-110-190



Model 106F



Models 702A and 702E



Models 106F, 702A and 702E

PARTS LIST FOR MODELS 106F, 702A AND 702E ROTARY MOWERS

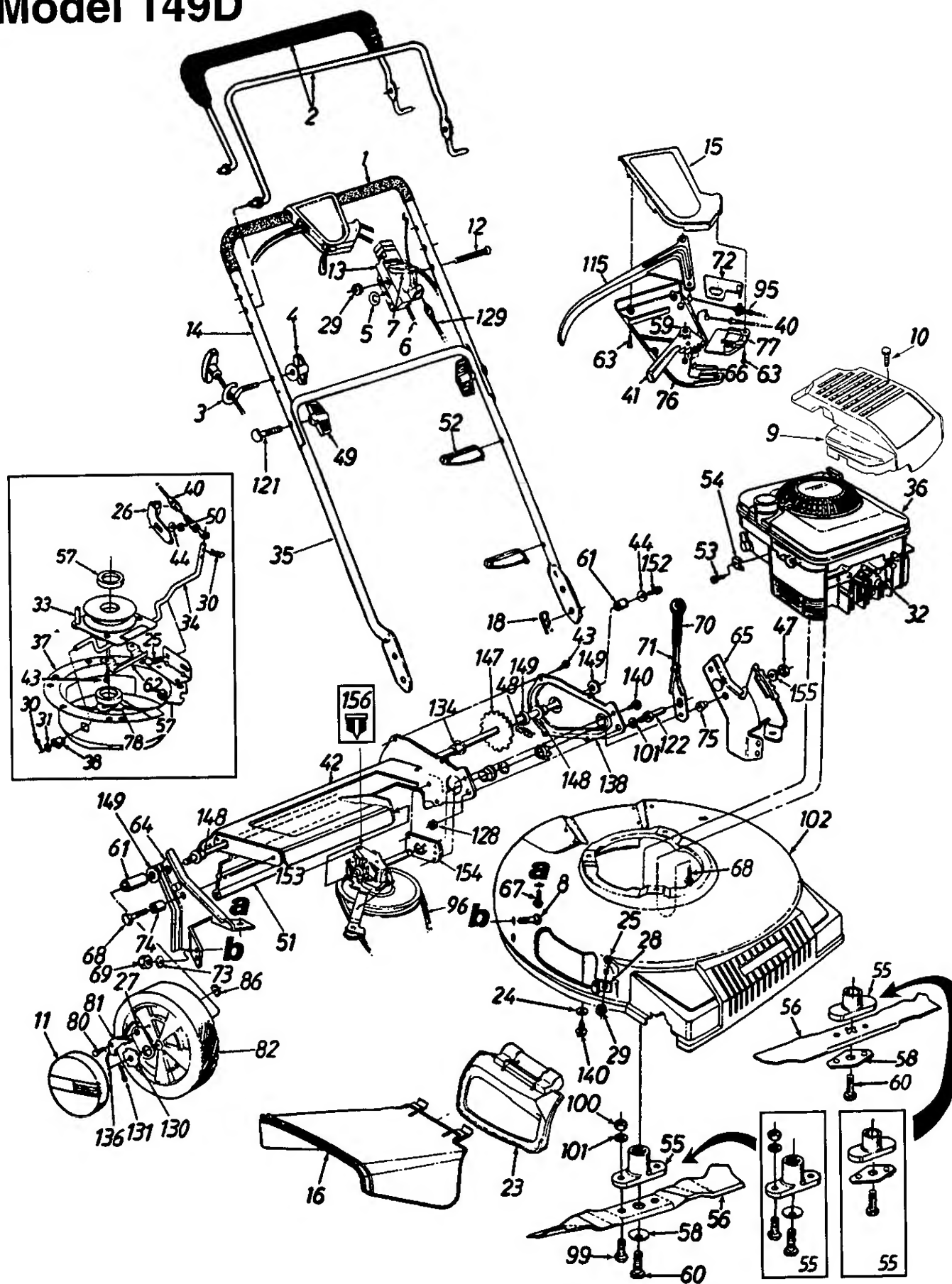
Ref No.	Part No.	Code	Description	Ref No.	Part No.	Code	Description
1	647-0004		Control Hdle Ass'y. (106F)	34	710-1055		Hex Bolt 3/8-24 x 1" Lg.†
	747-0824		Control Hdle Ass'y. (702A/E)	35	736-0169		L-Wash. 3/8" I.D.* ‡
2	710-0605		Oval C-Sunk Scr.	36	712-0241		Hex Nut 3/8-24 Thd.‡
3	736-0501		Spr. Wash. .66" I.D.	39			Engine
4	746-0876		Throttle Lever	41	751B213146		Cable Clamp
5	712-0324		Hex L-Nut 1/4-20 Thd.	42	710-1237		Hex STap Scr. #10-32 x .62"
6	646-0875		Throttle Body	44	735-0639		Spark Plug Boot
7	720-0226		Grip (106F)	45	811-00185		Throttle Box Comp.(Incl. Ref. 2, 3, 4, 5, 6)
8	749-0538C-0637		Upper Handle	46	738-0102		Axle Bolt
10	710-1205		Rope Guide	47	736-0105		Bell-Wash. .400" I.D. x .88"
12	720-0276		Hand Knob	48	738-0507B		Shld. Bolt .50" Dia. x .357"
13	710-1174		Cur.Hd.Bolt 5/16-18 x 2" L.	49	14832		Spring Lever Assy. w/Knob
14	726-0240		Cable Tie	50	15262B		Pivot Bar
15	749-0928-0637		Lower Handle	51	15261A		Height Adj. Plate
16	714-0104		Hairpin Cotter	52	734-1819	N	Wheel Assy. Comp.
17	17098		Hinge Clip	53	14578		Ht Adj. Assy. Comp.R.F. & L.R.
18	731-1447		Rear Flap (106F)		14579		Ht Adj. Assy. Comp. L.F. & R.R.
	731-1028		Rear Flap (702A/E)	54	746-0842		Throttle Cable 51" Lg.
19	12935B		Hdle Brkt. Assy.L.H. (106F)	55	746-0553		Control Cable 36" Lg.
	682-3001A		Hdle Brkt. Assy.L.H. (702A/E)	57	710-0654A		Hex L-Wash. Hd. Scr. 3/8-16 x 1.0" Lg.
20	12936B		Hdle Brkt.Assy.R.H. (106F)	58	736-0504		Wave Washer .51" I.D. (106F)
	682-3000A		Hdle Brkt.Assy.R.H. (702A/E)	62	720-0279		Handle Knob 1/4-20 Thd.
21	736-0356		Bell-Wash. .39" I.D. x 1.38"	63	682-7000		Mulching Plug (106F)
22	712-0798		Hex Nut 3/8-16 Thd.*		682-7002		Mulching Plug (702A/E)
23	731-0981A		Hub Cap (106F)	64	731-1409		Chute Deflector
24	741-0180		Bearing (106F)	65	736-0270		Bell-Wash. 1/4" I.D.
29	682-0016-0662		20" Deck Assy. (106F)	66	710-0599		Hex Wash. Hd. TT-Tap Scr.1/4-20 x .5" Lg.
	682-0018-0662		18" Deck Assy. (702A/E)	67	710-1256		Hi-Lo Scr. #10 x 1.25" Lg. (106F)
30	753-0484		Blade Adapter Kit ‡	68	751B281451		Engine Shroud (106F)
	753-0588		Blade Adapter Kit †		777-0148		Throttle Inustruction Label
31	736-0452		Bell-Wash. .46" I.D. ‡		777-0870		Danger Label (Cut Hand)
	736-0524A	N	Blade Bell Support †		777-1299		Warning Label (Chute Cover)
32	710-1044		Hex Bolt 7/16-20 x 1.5" Lg.		777-3801A	N	Safety Label (Cur. Deck /106F)
33	742-0720		20" Mulch Blade (106F) ‡		777-1557		Danger Label (St. Deck / 702A/E)
	742-0718		18" Mulch Blade (702A/E) ‡		777-4719	N	Decorative Label (Shroud/106F)
	742-0740		20" Mulch Blade (106F) †		777-4852	N	Decorative Label (Hubcaps/106F)
	742-0738		18" Mulch Blade (702A/E) †				

† Blade secured with 1 bolt.

‡ Blade secured with 2 bolts.

NOTE: Specifications subject to change without notice or obligation.

Model 149D



Model 149D

Parts List for Model 149D Rotary Mower

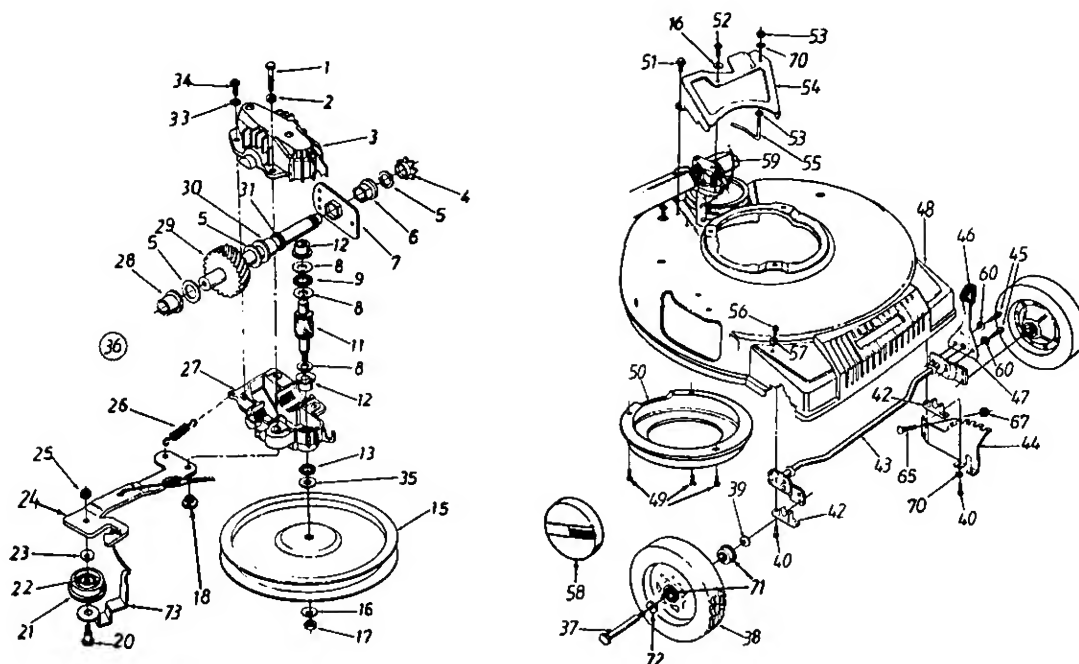
REF NO.	PART NO.	CODE	DESCRIPTION	REF NO.	PART NO.	CODE	DESCRIPTION
1	720-0294		Foam Grip (2 Req'd.)	62	782-7563		Bracket Shift Plate
2	647-0004		Control Handle	63	710-0841		C-Sunk Tap Scr. #10 x .75" Lg.
3	710-1205		Rope Guide	64	682-3006A		R.H. Handle Wheel Brkt. Assy.
4	720-0279		Handle Knob 1/4-20 Thd.	65	682-3007A		L.H. Handle Wheel Brkt. Assy.
5	736-0501		Curved Spring Wash. .66" I.D.	66	732-0627		Shift Lever Spring
6	746-0843		Throttle Wire 55" Lg.	67	710-0607		Hex B-Tap Scr. 5/16-18
7	746-0876		Throttle Lever	68	710-0654A		Hex TT-Tap Scr. 3/8-16
8	710-0260		Carriage Bolt 5/16-18 x .62" Lg.	69	712-0267		Hex Nut 5/16-18 Thd.*
9	751B281451		XTE Engine Shroud	70	720-0223		Grip
10	710-1256		Hi-Lo Screw #10 x 1.25" Lg.	71	732-0725		Height Adj. Lever
11	731-0981A		Hub Cap	72	16864		6 Spd. Rack Cable Brkt.
12	710-0605		Oval C-Sunk Mach. Scr.	73	736-0242		Bell-Wash. 5/16" I.D.
13	646-0875		Throttle Body	74	750-0736		Spacer .383" I.D.
14	749-0539B-0637		Upper Handle	75	750-0624		Shld. Spacer .5" Dia.
15	731-0904		Upper Control Housing	76	731-0905		Lower Control Housing
16	731-1409		Side Chute Deflector	77	731-0906		Cable Mounting Cap
18	714-0104		Internal Cotter Pin 5/16" Dia.	78	736-0526		Wave Wash. .88" I.D. x 1.38" O.D.
23	682-7002		Mulch Plug Assy. Comp.	79	710-0653		Hex Wash. Hd. Tap Scr. 1/4-20 x .38" Lg
24	736-0270		Bell-Wash. .265" I.D. x .75" O.D.	80	738-0137A	N	Shld. Scr. .342" Dia. x .268
25	710-0167		Carriage Bolt 1/4-20 x .5" Lg.	81	748-0188B		Pawl R.H.
26	17070		Adjustable Cable Bracket		748-0381		Pawl L.H. (Not Shown)
27	16855		Pawl Plate	82	734-1824	N	Wheel Assy. Comp.
28	782-7009		Chute Stop Bracket		741-0486B		Wheel Bearing
29	712-0324		Hex L-Nut 1/4-20 Thd.	86	712-0414		Weld Top L-Nut 1/4-20 Thd.
30	714-0507		Cotter Pin 3/32" Dia. x .75"	95	746-0710A		S.P. Cable
31	736-0278		FI-Wash. .328" I.D. x .68"	96	754-0343		V-Belt
32	735-0639		Spark Plug Insulator	99	710-1055		Hex Bolt 3/8-24 x 1.0" Lg.
33	656-0612		Pulley Assy.	100	712-0241		Hex Nut 3/8-24 Thd.
34	747-0882A		Shift Rod	101	736-0169		L-Wash. 3/8" I.D.
35	749-0928-0637		Lower Handle	102	782-0027-0662		21" Deck Assy.
36			Engine 5.5 H.P.	115	731-0620		Control Lever
37	682-7514		Housing Assy.	121	710-1174		Curved Hd. Bolt 5/16-18 x 2" Lg.
38	731-1137		Flanged Bushing	122	711-0805		Shld. Pin 1.43" Lg.
40	746-0706		6 Spd. Cable	128	712-0711		Hex Jam Nut 3/8-24 Thd.*
41	731-0924		6 Spd. Shift Lever	129	746-0550		Control Cable 39"
42	682-7513		Chain Axle Assy.	130	748-0318		Ratchet Wheel 1.62" O.D.
43	710-0653		Hex B-Tap Scr. 1/4" x .38"	131	714-0115		Cotter Pin 1/8" Dia. x 1"
44	736-0270		Bell-Wash. 1/4" I.D.	134	741-0522		Hex Flange Bearing
47	712-0296		Hex Patch L-Nut 3/8-24 Thd.	136	10622B		Spring Nylon
48	713-0361		#48 Chain .500" Pitch x 38 Links	138	682-7506		Chain Cover Assy.
49	720-0276		Hand Knob	140	710-0599		Hex TT-Tap Scr. 1/4-20 x .50"
50	712-0291		Hex L-Nut 1/4-20 Thd.	147	738-0864		Rear Shaft Assy. 21.44" Lg.
51	731-1483		Rear Flap 4.8" x 17.5" Lg.	148	741-0324		Hex Flange Brg. .506" I.D.
52	726-0240		Cable Tie	149	736-0160		FI-Wash. .531" I.D. x .930"
53	710-1237		Hex Wash. Hd. Scr. #10-32 x 62" Lg	152	710-0751		Hex Bolt 1/4-20 x .62" Lg. (Gr. 5)
54	751B213146		Casing Clamp	153	717-0417B		Transmission Comp.(See Breakdown)
55	753-0519		Blade Adapter Kit†	154	16500A		Hex Bearing Cup
	753-0609		Blade Adapter Kit †	155	736-0300		FI-Wash. .385" I.D. x .87" O.D.
56	742-0721		21" Mulching Blade ‡	156	721-0325		Plug
	742-0741		21" Mulching Blade †)		777-0148		Throttle Label
57	750-0968		Spacer .885" I.D. x 1" O.D.		777-3541		Transmission Drive Label
58	736-0452		Bell-Wash. .39" I.D. x 1.14" O.D ‡		777-7505		Height Adjuster Label
	736-0524		Blade Bell Support †		777-8627		Six Speed Drive Lever Label
59	713-0397		Gear Insert		777-0870		Danger Label (Cut Hand)
60	710-1257		Hex Bolt 3/8-24 x 2.5" Lg. (Gr. 8)		777-1299		Warning Label (Chute Defelctor)
61	748-0190		Spacer .513" I.D.		777-1599A	N	Danger Label (Cutting Deck)

† Blade secured with 1 bolt.

‡ Blade secured with 2 bolts.

NOTE: Specifications subject to change without notice or obligation.

Model 149D



Parts List for Model 149D Rotary Mower

REF. NO.	PART NO.	CODE	DESCRIPTION	REF. NO.	PART NO.	CODE	DESCRIPTION
1	710-1062		Hex Patch Bolt 1/4-20 x 1.25"†	38	734-1819		Wheel Assy. Comp.
2	736-0329		L-Wash. 1/4" I.D.*	39	736-0105		Bell-Wash. .380" I.D. x .88
3	717-0418A		Upper Hsg. Half†	40	710-1241		Hex Wash. Hd. Scr. 1/4 x 1" Lg.
4	713-0400		#48 Sprocket 7 T x 1/2 Pitch†	42	741-0492A		Block Bushing
5	736-0336		FI-Wash. 5/8" I.D. x .030†	43	17733		Axle Assy.
6	741-0413		Hex Flange Brg. .631" I.D.†	44	782-0516		Height Adj. Bracket
7	16500A		Hex Bearing Cup†	45	710-0653		Hex TT-Tap Scr. 1/4-20 x .38"
8	736-0314		Thrust Wash. .382" I.D. x .70" O.D.†	46	720-0190		Knob
9	741-0479		Thrust Bearing .375" I.D. x .812" O.D.†	47	732-0639		Spring Lever
11	717-1216		11 Tooth Pinion Shaft†	48	731-1422A		Plastic Front End
12	748-0208A		Flange Bearing†	49	710-1005		Hex B-Tap Scr. 1/4" x .50"
13	721-0212		Oil Seal†	50	782-7558		Belt Cover
15	756-0330A		FI-Pulley 5.06" O.D.	51	710-0599		Hex Wash. Hd. TT-Scr. 1/4-20
16	736-0270		Bell-Wash. .265" I.D. x .75"	52	710-0896		Hex Wash. Hd. B-Tap Scr. 1/4 x .62" (Spec.)
17	712-0351		Hex L-Nut 1/4-28 L.H. Thd.	53	712-0287		Hex Nut 1/4-20 Thd.*
18	738-0440		Shld. Spacer .375" Dia. x .170	54	17058A		Transmission Belt Cover
20	738-0826		Shld. Bolt .375" Dia. x .40"	55	747-0549		S.P. Belt Guard
21	656-0008		FI-Idler Plastic 1.50" Dia. (Incl. Ref. 22)	56	710-1242		Torx Truss Hd. Scr. 5/16 x .75"
22	741-0556		Needle Brg. .375" x .31	57	736-0242		Bell-Wash. .345" I.D. x .88"
23	736-0270		Bell-Wash. .265" I.D. x .75"	58	731-0981A		Hub Cap
24	782-7570		Idler Brkt. Assy.	59	746-0710A		S.P. Cable
25	712-0138		Hex Patch L-Nut 1/4-28 Thd.	60	736-0222		External L-Wash. 1/4" I.D.
26	732-0357A		Extension Spring 1.12" Lg.	65	710-0167		Carr. Bolt 1/4-20 x .5" Lg.
27	717-0419B		Lower Hsg. Half	67	712-3027		Hex Flange L-Nut 1/4-20 Thd.
28	741-0415		Flange Bearing .566 Dia.†	70	736-0329		L-Wash. 1/4" I.D.*
29	717-0616A		Shaft Assy.†	71	741-0484		Wheel Bearing
30	741-0414		Flange Bearing .629 Dia.†	72	736-0504		Wave Washer
31	721-0213		Oil Seal .625 Dia.†	73	782-7569		Belt Keeper
34	710-0589		Hex B-Tap Scr. #10 x .75"†				
35	736-0410		Hex Washer .26" x .88"				
36	717-0417B		Transmission Comp.				
37	738-0102		Front Axle Bolt				

MANUFACTURER'S LIMITED WARRANTY FOR:



For TWO YEARS from the date of retail purchase within the United States of America, its possessions and territories, MTD Products at its option, repair or replace, for the original purchaser, free of charge, any part or parts found to be defective in material or workmanship. This warranty covers units which have been operated and maintained in accordance with the owner's instructions furnished with the unit, and which have not been subject to misuse, abuse, neglect, accident, improper maintenance or alteration.

NORMAL WEAR PARTS or components there of are subject to separate terms as noted below in the "No Fault Ninety Day Consumer Warranty" clause. Commercial use is subject to the terms listed above, and is covered for a period of 90 days from the date of purchase.

TWO YEAR CONSUMER WARRANTY ON NORMAL WEAR PARTS WITH NINETY DAY NO FAULT PROTECTION; All normal wear part failures will be covered on this product for a period of 90 days regardless of cause. After 90 days, but within the two year period, normal wear parts failures will be covered IF caused by defects in material or workmanship. Normal wear parts are defined as belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, shave plates and tires.

HOW TO OBTAIN SERVICE: Warranty service is available, with proof of purchase, through your local authorized service dealer. To locate the dealer in your area, please check the yellow pages or contact the Customer Service Department of MTD Products, PO Box 361131, Cleveland, Ohio 44136-0019, Phone (330) 225-8883. The return of a complete unit will not be accepted by the factory unless prior written permission has been extended by the Service Department of MTD Products.

TRANSPORTATION CHARGES: Transportation charges for the movement of any power equipment unit or attachment are the responsibility of the purchaser. Transportation charges for any parts submitted for replacement under this warranty must be paid by the purchaser unless such return is requested by MTD Products.

UNITS EXPORTED OUT OF THE UNITED STATES: MTD Products does not extend any warranty for products sold or exported outside of the United States of America, its possessions and territories, except those sold through MTD Products' authorized channels of export distribution.

OTHER WARRANTIES:

1. The engine or component parts thereof carry separate warranties from their manufacturers. Please refer to the applicable manufacturer's warranty on these items.
2. Batteries are covered by a 90-day replacement warranty.
3. Log splitter pumps, valves and cylinders or component parts thereof are covered by a one year warranty.
4. All other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular purpose, are hereby expressly disclaimed in their entirety.
5. The provisions as set forth in this warranty provide the sole and exclusive remedy of MTD Products obligations arising from the sales of its products. MTD Products will not be liable for incidental or consequential loss or damage.

HOW STATE LAW RELATES TO THIS WARRANTY:

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Certain disclaimers are not allowed in some states and therefore they may not apply to you under all circumstances.

NOTE: This warranty does not cover set-up, routine maintenance items such as lubricants, filters, blade sharpening and tune-ups, or adjustments such as brake adjustments. Nor does this warranty cover normal deterioration of the exterior finish due to use or exposure.



**FOR THE DEALER NEAREST YOU
CALL
1-800-9-4-WHITE.**

The only way to ensure the performance of your product is to use original equipment your product is to use original equipment your product is to use original equipment parts and accessories. MTD Products parts and accessories. MTD Products designs and engineers quality parts to exacting specifications. When you substitute, you take a chance on quality, reliability, safety and performance. Use MTD products original equipment parts-See your local White Outdoor dealer!



WARNING: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.